

TEACHING MACHINES AND
PROGRAMED INSTRUCTION

REPORT FROM THE NEW EDITOR

Robert T. Filep

IN THE MARCH-APRIL 1961 issue of *AVCR*, Arthur A. Lumsdaine reported that a new department was being established in this publication devoted to teaching machines and auto-instruction programs. The action was warranted "by the rapid expansion and specialized nature of this trend of development in instructional technology, which—after having lain largely fallow for 30 years following Pressey's original work in the 1920's—has literally mushroomed in the past few years, commencing with B. F. Skinner's 1954 paper in the *Harvard Educational Review*."

With the tenth anniversary of the current movement only a year away, the mushrooming continues, and A. A. Lumsdaine, originator and head of this department for the past two and one-half years, has found it necessary to request "retirement" to devote more time to research and teaching activities. His efforts and contributions to this department shall always be gratefully acknowledged as one of many contributions he has made to this field during the past 13 years.

The recent growth and expansion of the field would dictate that in addition to

theoretical papers, reports of completed research, and notes on experimentation on programming and teaching machine developments in progress, mention should be made of recent programs, teaching machines, and books and articles which will be of interest to the *AVCR* reader. Sections of this department in future issues will be devoted to abstracts of utilization reports. Reports of adaptations of programming techniques to all forms of media will be considered appropriate for publication in this department.*

Approximately 400 programs will be available for use in September 1963 as reflected by an advance copy of the programs in *Programs, '63: A Guide to Programed Instructional Materials Available for School Use. September, 1963*. (See pages 135-36 for a review of *Programs, '62*.) The publication is a joint Center for Programed Instruction and Office of Education activity.

* Manuscripts should be sent directly to Robert T. Filep, Department of Cinema, Research Division, University of Southern California, University Park, Los Angeles 7, California.

Programs, '62 listed 122 programs available for school use in September 1962. However, this list did not include programs that had been constructed for nonschool use. The earlier Finn-Perrin report, *Teaching Machines and Programed Learning, 1962: A Survey of the Industry* (Government Printing Office, OE-34019), indicated a much larger total of 630 to be available by the end of the 1962 calendar year, but pointed out that this information was "subject to some interpretation and should be regarded as an approximation." The expectations of program producers stated at the time of this report did not reflect any realistic appraisal of the time and funds required to develop effective programs. This survey also pointed out that a broad interpretation should be made of the definition of a program, and the list included *many* programs which would not be applicable for school use.

Recently the Wilbur Schramm publication, *Programed Instruction . . . Today and Tomorrow* (Fund for the Advancement of Education), cited the 630 estimate as somewhat of a blue-sky figure and an indication of the discrepancy between pronouncements and publication. However, school personnel planning to establish or increase the use of programs in their school in September 1963 will find many programs available.

Is our eagerness for economical instruction forcing us back upon the lecture, which has "always taught the teacher more effectively than the learner"? asks Lloyd Pulliam in the May 1963 issue of *Phi Delta Kappan*. For those who are concerned with applying the principles of programed instruction to a multimedia approach to teaching, or facets thereof, some refreshing slants

are provided which relate to active student participation in the learning process. Teaching situations that employ this approach are highly reinforced, while caveats are posed for those who may be unconsciously "slipping back" to the lecture method of teaching.

We would all agree that any communication taking place in the classroom still revolves around the teacher. "How Good Are Our Teachers" is the title of an article in the June 1963 issue of *Changing Times*. This provocative report will be of interest to all members of the educational community and should certainly affect the thinking of the lay public regarding the teaching profession.

Keep an eye out for a book to be published soon by Prentice-Hall and co-authored by Carleton Washburne and Sidney P. Marland, Jr. It describes the use of self-instructive, self-corrective teaching materials and diagnostic tests that are referred to as the Winnetka Plan and are still in use today, in modified form, in the Winnetka, Illinois, public schools. The plan in many ways employs the psychological set required for the use of programed instructional materials, even though the materials in use today could not technically be defined as programs. The senior author, Carleton Washburne, is credited with originating the Plan in 1919. Sidney Marland is the superintendent at the present time.

Anyone teaching a beginning course in programming or a person who desires an introduction to this field should find *Teaching Machines and Programed Learning* by Edward B. Fry quite useful. The text, published by McGraw-Hill, was released this spring. (For a review of this book, see pages 131-32.)

Fifty institutions report on their activities in the forthcoming publication, *New Media in Higher Education*. The editors of this publication, James W. Brown and James W. Thornton, Jr., of San Jose State College, California, have included many outstanding examples of the use of the products of instructional technology. Approximately one-half of the institutions are land-grant colleges, and the majority of the institutions have enrollments of over 10,000 students. The reports range in complexity of organization and size from the Oregon State System of Higher Education and the large Midwestern universities to the small liberal arts colleges such as Goddard, Earlham, and Stephens. Ten reports are provided in the section on programmed instruction. The group represents a wide range of uses of teaching machines and programmed instruction in higher education. If space had permitted, the authors might also have included the work at Harvard University of Holland and Skinner; the Hamilton College experiment in programmed learning; the use of programs at the newly established Delta College in Michigan, and perhaps the library program of Wendt and Rust at the University of Southern Illinois. The publication was cosponsored by the Association for Higher Education and the Division of Audiovisual Instructional Service. It will be available in September; \$4, clothbound, \$3, paperbound.

During the recent fourth annual Western Programing Conference held at San Jose State College, California, a number of participants were concerned that titles of programs are announced, but quite frequently difficult to obtain. In this column recently published programs which have been *received* will be

cited so that readers will be advised of the availability of recently published programs and will know which portions of subject areas are being programmed.

Writing Russian Script by Irving J. Saltzman of Indiana University and published by McGraw-Hill is designed to enable a student "to learn the names and the alphabetical sequences of the 33 letters in the Russian (cyrillic) alphabet. The student will also learn to recognize the printed forms of the letters . . . and how to write letters in script and how to join the letters together properly to form words." Taped material is available to go with the programmed text. The student who is interested in learning to pronounce the names of the letters of the alphabet and wishes additional practice is "strongly advised" to use the tapes.

Another program written at Indiana University is *Learning How To Use the Dictionary* by Paul McEvoy and published by Macmillan. Other programs received from Macmillan include a three-volume series, *Programed Geography*, by Cynthia D. Buchanan of Sullivan Associates. The programs incorporate an extensive use of graphics and color. In the first book, *The Earth in Space*, the student is first asked to place the earth, solar system, the milky way galaxy, and the universe in proper relationship to each other. Consideration is then given to the planets' periods of rotation and revolution, axial tilt, gravitational force, atmosphere, and the seasonal changes in both hemispheres. Basic map reading skills are also included. The second book, *Continents and Oceans*, discusses the major geographical features of the earth's surface, with special emphasis on map-reading skills and earth-sun relationships. The

third book in the series, *Latitudes and Climates*, introduces the concept of latitude and considers the earth's major climate regions.

For the teacher of mathematics, *Points, Lines, and Planes* by Ernest R. Ranucci and *What are the Chances—An Introduction to Probability* by Martin M. Moskowitz, have been received from the same publisher. The *Probability* program designed for use with junior high school students includes the units, "What Is Probability," "Sample Spaces and Random Choices," "Partitions and Complements," and "Other Types of Probability." The introduction to geometry in two dimensions has the chapters, "Points and Lines," "Discovering Segments and Rays," and "Curves and Polygons."

A series of programs which cover basic content in fundamental subjects—reading, arithmetic, and language—entitled *Lessons for Self-Instruction in Basic Skills* have been developed by the California Test Bureau. These are teaching aids which have as their ob-

jectives the acquisition of skills and concepts similar to those measured by the *California Achievement Tests* (CAT). The text, however, is *not* a paraphrase of the tests, and the use of these programs *will not* invalidate test scores on the CAT. The programs were developed under the direction of Edward B. Fry who was also an author of the reading section along with Laurence W. Carrillo. Other authors include Maryl Doyle and Eileen Lothamer, English; Leo J. Brueckner, arithmetic; and Elaine C. Harvey and Virginia M. Johnson, contemporary mathematics. Wayne E. Rosenoff was project coordinator.

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Lewis Mumford points out that "nothing that man created is outside his capacity to change, to remold, to supplant or to destroy. His machines are no more sacred or substantial than the dreams in which they originated."

This is a poignant consideration, indeed, for those who seek to introduce the fruits of instructional technology in their school system, or to enlighten others regarding its merits.